

I CLAIM:

1. A foot pedal mechanism for an elliptical exerciser comprising:

a frame;

a pair of foot pedals adapted to each support thereon a foot of the user standing on the elliptical exerciser;

a crank for each said foot pedal, each said crank being operatively connected to a respective one of the foot pedals such that a rotation of each said crank about an axis of rotation thereof causes a first motion restriction of the respective one of the foot pedals; and

first linkages interconnecting said cranks to the frame such that at least the axis of rotation of each said crank is displaceable with respect to the frame to cause a second motion restriction of the respective one of the foot pedals, a combination of said first and second motion restrictions resulting in the foot pedals being restricted to an elliptical path of motion, the cranks being interconnected to synchronize a displacement of the foot pedals with respect to one another along the elliptical path of motion.

2. The foot pedal mechanism according to claim 1, wherein the first linkages each have a pair of pivotally interconnected links, with opposed ends of the links being respectively connected to the axis of rotation of the cranks and to the frame.

3. The foot pedal mechanism according to claim 1, wherein the first motion restriction is a circular motion about the axes of rotation of the cranks, and the second motion restriction is a translation of the cranks on the frame.

4. The foot pedal mechanism according to claim 3, wherein the translation of the cranks on the frame is effected by each said crank being provided with a rolling portion displaceable on the frame.

5. The foot pedal mechanism according to claim 1, wherein the first motion restriction is a circular motion about the axis of rotation of the cranks, and the second motion restriction is an arcuate rocking of the cranks with respect to the frame.

6. The foot pedal mechanism according to claim 1, further comprising a pair of auxiliary cranks each associated with one of said cranks, the auxiliary cranks each being connected to a respective one of the foot pedals, and being driven by said cranks to maintain the foot pedals parallel in the elliptical path of motion.

7. The foot pedal mechanism according to claim 1, wherein the first linkages each have a first link pivotally connected at opposed ends to the axes of rotation of the cranks and to the frame.

8. The foot pedal mechanism according to claim 7, further comprising second linkages between each said crank and a respective one of the foot pedals, the second linkages having:

a second link for each crank, each said second link being pivotally radially connected to the crank and to the frame such that a free end of each said second link is displaceable in the first motion restriction;

a third link for each crank, each said third link being pivotally connected to the axis of rotation of the crank such that a free end of the

third link is displaceable in the second motion restriction; and

a fourth link for each crank, each said fourth link being pivotally connected to the free ends of respective ones of the second link and the third link, and to the foot pedal, to transmit the first and second motion restrictions to the foot pedal.

9. An elliptical exerciser comprising:

a frame;

a foot pedal mechanism having a pair of foot pedals, the foot pedals being displaceable with respect to the frame according to a given path of motion and adapted to each support thereon a foot of a user standing on the elliptical exerciser, the foot pedal mechanism synchronizing a displacement of the foot pedals with respect to one another to cause a leg workout of the user; and

a handlebar mechanism having a pair of handlebars displaceable in synchronism with respect to one another, said handlebars being pivotally mounted to the frame and adapted to be grasped by the hands of the user, the handlebar mechanism synchronizing a displacement of the handlebars with respect to one another to cause an upper body workout;

wherein the foot pedal mechanism and the handlebar mechanism are independent from one another.